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A Congenital Deformity Affecting the Skull and Brain of a Piglet

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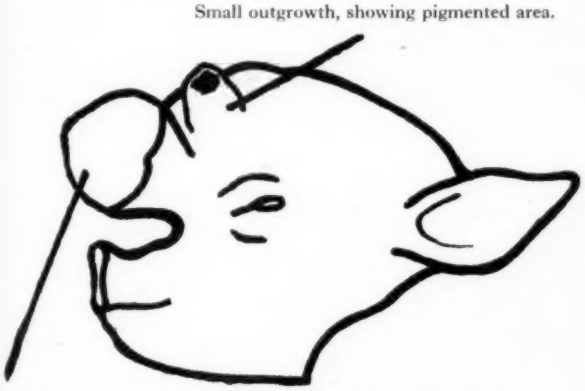
On April 15th, 1941, a sow at the Iheme Agricultural Station, Iringa, gave birth to a litter of eight piglets. One of these piglets was born dead and another, which showed an obvious malformation of the head, died almost immediately. Two other piglets in this litter were obviously weakly, and died two days later. Previous to this, on March 16th, 1941, another sow had given birth to a litter of five piglets, one of which was deformed in a similar way. I was not present when either of these malformed animals was born, but the Agricultural Officer, struck by the occurrence, within such a short time, of what seemed to him an almost identical deformity, preserved the head of the second malformed piglet for my examination. In this paper it is intended to give a brief description of the abnormalities found, and to suggest a possible cause of the condition.

External Appearance

A pronounced bulging of the frontal region was an obvious feature on external examination, and on the left side of the head, two outgrowths were prominent. The larger of these arose just left of the mid-line immediately behind the suture of the nasal and frontal bones. This outgrowth was roughly pear shaped, increasing in circumference from base to rounded free extremity which was on a level with the tip of the nose. The posterior half of this outgrowth was covered by normal skin with hair, but anterior to this the covering of the outgrowth was semi-transparent and parchment-like. The line of junction between anterior and posterior parts was very well defined, and the impression given was not that the skin had become stretched and semi-transparent anteriorly, but that the common integument had parted to allow an internal membrane to protrude, with which it had subsequently fused. On palpation the outgrowth gave a cyst-like impression being apparently full of fluid.



Small outgrowth, showing pigmented area.

Large outgrowth, posterior half covered by normal skin.

Figure 1—HEAD: Left Aspect.

The other outgrowth was much smaller, and lay dorsal and posterior to the one just described. Pointing in an antero-dorsal direction, its circumference was roughly the same throughout its length which was 3·0 cm. This outgrowth was covered with normal skin except at the extreme free end, which was hairless, and darkly pigmented. Palpation of this outgrowth gave the impression that within the skin was contained a solid substance of soft consistency.

The Skull

The facial bones were apparently normal, but the cranium, bulging in lateral and anterior directions, was obviously malformed. The occipital bone was distended, but the chief abnormalities were to be found in the parietal and frontal bones.

Each parietal bone bulged laterally, and dorsally. There was no marked parietal crest, and the bones were abnormally thin. The crest, formed by the ventral border of the bone, which laterally separates the cerebral and cerebellar portions of the brain, was present.

The frontal bones: In the normal skull the frontal bones are long and slope down and forward. In its anterior part each bone is concave and is marked by the supraorbital foramen, and by the groove which leads from the foramen to the nasal bone. In the adult the bone is almost completely hollow, but in the young animal the excavation is confined to the anterior part of the bone, the remainder, however, being thick.

The frontal bones in the subject under review were thin, there was no anterior cavity, and the bones were grossly incomplete. The two frontal bones failed to articulate except anteriorly where, to the right of the mid-line, they formed a backward springing projection of bone 4 cm. in length. The effect was that of a huge foramen, circular in shape, in the frontal region, incompletely divided by this bony projection which was separated from the posterior border of the foramen by a distance of 2 cm. Posteriorly its boundary was formed for a distance of 1 cm. on either side of the mid-line by the anterior border of the parietal bones. Laterally and anteriorly its boundaries were formed by the frontal bones. The postero-anterior axis of the foramen sloped ventrally at an angle of 45°, and measured 6 cm.

Figure 2—SKULL: Right Aspect.

Figure 3—SKULL: Left Aspect.

Above the orbit the left frontal bone bulged out laterally and presented two large oval foramina each measuring 1·4 × 1 cm.

The long axis of the more anterior was dorso-ventral, that of the more posterior, antero-posterior. A small foramen was situated

ventral to these large foramina immediately above the dorsal rim of the orbit in its anterior third.

The right frontal bone also bulged out above the orbit to a lesser degree than did the left bone. A small oval foramen measuring 5 × 4 mm. lay 5 mm. above the dorsal rim of the orbit in its middle third.

In neither bone was there a clearly defined supraorbital process, but in the antero-ventral part of either bone there was a very small foramen which, although not superior to the orbit, was undoubtedly the supraorbital foramen. From the right foramen a groove ran medially to join the suture of the frontal and nasal bone. This groove was the supraorbital groove, in which lies the frontal vein, and which, in the normal skull, passes anteriorally from the supraorbital foramen. No distinct supraorbital groove could be distinguished on the left frontal bone.

In the right bone the supraorbital canal was complete and opened into the orbit at the upper part of its medial wall, in the usual way. In the left bone, however, the canal was quite incomplete although a small depression in the upper part of the medial wall of the orbit may have represented its orbital opening.

The ethmoidal foramen on either side was situated, as normally, in the ventral part of the orbit, near the junction with the orbital wing of the sphenoid bone.

The Brain

The abnormalities of the brain to be observed by macroscopical examination were confined to the forebrain.

The Cerebrum: Each cerebral hemisphere was a thin-walled, sac-like structure, which could be described as consisting of a lip and a fundus.

The lip of the right hemisphere was well marked. Posteriorly it began at the level of the corpus geniculatum laterale, ran laterally for 1·20 cm., turned and ran antero-dorsally for 2 cm., and then turned medially, and swept back to its anterior extremity just anterior to the thalamus. This lip bounded a large foramen, the entrance to the fundus, which faced in a dorso-medial direction. The wall of the fundus, representing the pallium of the hemisphere, was thin. Convolutions were absent except in the anterior third where they were fairly well marked for 3 cm. to the right of the mid-line, and faced ventrally. The wall at its thickest part in the convoluted area had a thickness of 1 cm. In the area of the convolutions, grey matter and cortex could be distinguished clearly on sectioning the wall, but elsewhere the layer of grey matter was extraordinarily thin.

The anterior and posterior extremities of the lip of the left hemisphere were the same as those of the right, but the lip itself was not nearly so well marked, and was considerably greater in length, the entrance to the fundus being much larger than the entrance in the right hemisphere. The fundus was large and folded back on itself, the entrance being obliterated until the fundus was spread out laterally. The wall was very thin, having a fairly constant thickness all over of about 3 mm.

The only connection between the hemispheres was a ventral commissure 1 cm. in length and 4 mm. in thickness.

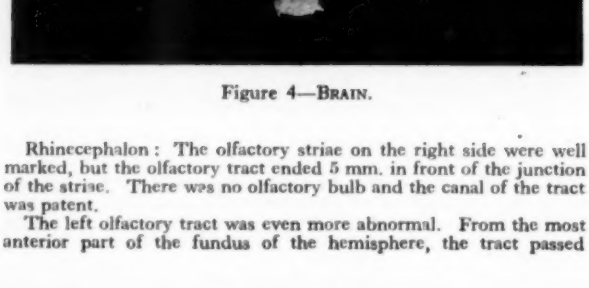


Figure 4—Brain.

Rhinecephalon: The olfactory striae on the right side were well marked, but the olfactory tract ended 5 mm. in front of the junction of the striae. There was no olfactory bulb and the canal of the tract was patent.

The left olfactory tract was even more abnormal. From the most anterior part of the fundus of the hemisphere, the tract passed laterally and upwards through the more posterior of the two large foramina, dorsal to the orbit, in the left frontal bone. The tract ended blindly, but there was no demarcated olfactory bulb. The wall of the tract was thin and the diameter of the canal was 1 cm. It was this tract which, covered by the meninges and by skin, formed the smaller and more posterior of the two outgrowths from the head.

The larger outgrowth sprang from the antero-ventral part of the large foramen bounded by the incomplete frontal bones, to the immediate left of the backward pointing bony projection. The wall of this outgrowth appeared to consist of dura mater and periosteum, and only in its posterior half apparently, was it covered with skin.

DISCUSSION

It is suggested that this condition of deformity might be due to a deficiency of vitamin A in the diet of the sow during her pregnancy.

The two sows which gave birth to the deformed piglets were receiving a ration consisting of a mixture of maize meal, meat meal, wheat bran, common salt, and lime. This ration was supplemented, when possible, by green plant food, which, as was emphasised by Sen and Seshan (1938)[1], must be the chief source of supply of vitamin A for farm animals.

The sow whose deformed offspring has been described in this paper, was served in December, 1940, and received no green plant food until the middle of January. From January until March, when larger supplies became available, she received but little of this addition to her ration. Subsequently this sow was served at the beginning of June, received ample green plant food, and gave birth in September to twelve healthy piglets.

The other sow mentioned in the introduction bore a deformed piglet at the end of a gestation period during which she also was suffering from a lack of green plant food. She, too, received ample green food during her subsequent pregnancy and gave birth to a healthy litter. At the end of 1941, and beginning of 1942, this animal was again pregnant at a time when she was deprived of green plant food. She gave birth prematurely at the end of February to two dead piglets and died shortly afterwards. *Post-mortem* examination revealed the presence of 13 foetuses *in utero*.

We have here, then, a record of stillbirths, premature births, and deformities, associated with an amount of green plant food in the diet of the mothers, less than at times when they have given birth to normal healthy offspring. A survey of the literature on the subject shows that at various times these untoward happenings have been associated with a vitamin A deficiency.

Premature births, and calves born dead at term, have been recorded by Guilbert and Hart (1933)[2] as being a result of naturally occurring vitamin A deficiency in range cattle, and Hughes, Aubel, and Leinhardt (1928)[3] have reported abortion in vitamin A-deficient pigs.

Mellanby (1938)[4] noticed bony abnormalities of the skull in puppies fed on a diet deficient in vitamin A, and an outbreak of blindness due to constriction of the optic nerve where it enters the cranium, was described by Moore, Huffman and Duncan (1935)[5] in calves from mothers whose diet was deficient in this vitamin. It is known that calves born from cows whose diet is deficient in vitamin A, are often born blind, although the mothers themselves may be showing no clinical symptoms.

The work of Irving and Richards (1938)[6] on rats, pointed to the fact that degeneration of the funiculus praedorsalis at the level of the pyramidal decussation was a fundamental lesion of vitamin A deficiency. Sections were made from the medulla oblongata of the brain described in this paper, but from a study of these no definite degeneration could be determined.

Acknowledgments.—My thanks are due to Mr. A. J. Hopwood, of the Public Works Department, who kindly photographed the skull and the brain, and to the Director of Veterinary Services, Tanganyika Territory, for permission to publish this paper.

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Weekly Wisdom

Don't slavishly take any man's word on anything: mine least of all. Study things out for yourself and be very sure of your facts. I never found that arguing did much good. If my facts were not convincing I went to work to find others which were.—F. B. Mallory (1862-1941), the distinguished American pathologist.

The Ear-Marking of Sheep in Some Parts of North Wales*

H. M. SALUSBURY, M.R.C.V.S., D.V.H.

I make no apology for bringing forward this subject. Some of you might say with what appears to you some justification, "But what has this got to do with us? We are concerned more with disease than this type of thing." It is accepted, however, that before we can know disease in an animal we should know in some detail the normal methods of husbandry of that animal. You will not dispute that. Ear-marking, then, is part of sheep husbandry.

Flockmasters even though they at times appear slow are very quick to perceive whether or not the professional attendant, in whatever capacity he may be present, is familiar with sheep or otherwise. Familiarity is shown, for instance, in the handling of sheep, in the recognition of the several ages, classes, sexes and breeds of sheep and in the ability to distinguish between lowland and mountain sheep. Complete understanding of mountain sheep cannot be claimed without a knowledge of the system of ear-marking, and it helps to gain the confidence and respect of the flockmaster.

The ear-marking of sheep is a very old practice. It dates back several centuries and probably started when agriculturalists first began to enclose the lower mountain slopes as additions to their holdings. Sheep—then running wild—were appropriated, ear-marked and put in the enclosures. When sheep went up in value to 2s. 6d. a head shepherding as we know it to-day then started.

Ear-marks already recognised as belonging to certain enclosed premises were utilised as a method for identification of sheep which owing to the increase in their numbers it was now necessary to turn on to the open mountain. The reason then that sheep are ear-marked is purely and simply as a method of identification.

As a general rule it is mountain sheep only which are ear-marked, although a few lowland flock-owners also adopt the practice. At best the ear-marking of lowland sheep can only be considered as a fad, because pitch and raddle marks are quite sufficient. On the mountain, however, when sheep may be lost for many months, temporary marks fade out and then the sheep is unidentifiable with certainty.

One must not run away with the idea that any sort of mark is made in the ear, because that is not the case. According to Ellis (*circa* 1908) there are some 26 well-defined and well-recognised ear-marks and each of these has a distinctive shape and a distinctive name. These marks with their names are shown on the sheets I now pass round. With one or two exceptions all the marks are in common use.

From time to time energetic shepherds have compiled lists of all the different ear-marks on a particular mountain showing the premises of origin against each mark. These lists have been published and in some cases take the form of a very useful register. Some ingenuity is shown in the compilation of these registers. For instance, in order to obviate the necessity for looking through, say, 2,000 ear-marks to find the one required, a system is evolved whereby there are noted several "key ear-marks" of the right ear. Thus all right ears having, say, "Tori Blaen" irrespective of any additional marks are grouped in one section and so on.

It will be seen that some of the marks can be used on either the right or the left ear or on both ears. Others, for instance, "hollti" or "canwer," can only be used once on each ear. The majority of marks, however, can be used either on the top or the bottom edge of either ear.

When it is considered then that the sheep has two ears, that there are 26 ear-marks, that the majority of these 26 can be used on the top and/or bottom of either or both ears, and the marks can be single or combined with other marks, it will be appreciated that on arithmetical grounds alone many hundreds of different combinations can be made. In one register alone 1,728 different identifications are given.

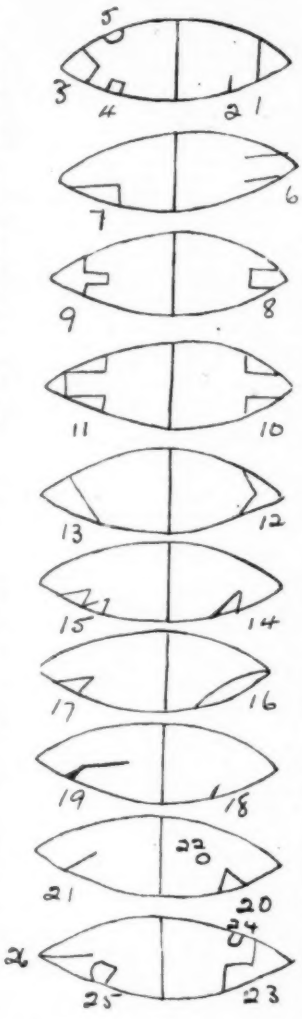
Perhaps you will refer to the list of the 26 ear-marks with their corresponding names so that we can consider the way in which these marks are made.

It is to be remembered that the mark belongs to the farm premises and not to any individual. There is a great deal of variation between the methods practised in one district and another and even one mountain and another. Animals are marked when they are lambs and the actual cutting is done either by a very sharp knife or the ordinary sheep shears especially sharpened for the purpose. It is usual to hold a special day for the marking, but in some districts it is combined with castration or shearing.

Any and everybody cannot mark the sheep. The marking is done by the shepherd of the premises—be he grandfather, son or hired shepherd. It is rare that more than one member of the family marks the sheep—certainly no neighbour does it. The reason for this was put to me by an old shepherd in what I thought was a very apt manner. He compared the cutting of earmarks to handwriting and said that in the same way as no two people make, say, identical letter a's so no two shepherds make the cut of any mark in exactly the same fashion. It follows then that it is only the shepherd of the flock himself who can make the cut of, say, a "Bwlch tri thoriad" which is associated with those particular premises.

The reading of an ear-mark from a diagram is quite an easy business, but the reading of an ear-mark on a live sheep requires a certain amount of practice and skill. I have seen experienced shepherds read ear-marks even at a distance; I have also seen veterinary surgeons fail to appreciate a very evident "Tori blaen y dde" even when they are handling the ear. To expect a man who is not familiar with ear-marks to perceive the mere presence of, say, the cut "Cwlio" No. 12 would be asking too much.

The sheep, then, must be caught and the ears examined carefully. One ear should be compared with the other. It is to be remembered that after the healing of the cut the wool on the ear grows and in part obscures the mark to sight alone. Touch must be used and the finger should be run carefully along the cut edge.



DESCRIPTION OF THE EAR-MARKS

1. *Tori blaen*—cut tip.
2. *Dyrnod cyllell*—blow with knife (straight cut).
3. *Canwer*—candle tip (the "v" cut.
4. *Bwlch tri thoriad* — gap (made by) 3 cuts.
5. *Bwlch plyg*—gap (made by) folding.
6. *Hollti'n dair* — split into three.
7. *Carai step*—gap (like a) step.
8. *Picfforch*—pitchfork.
9. *Picfforch fer*—short pitch fork.
10. *Cornpicin hir*—long chimney.
11. *Cornpicin byr*—short chimney.
12. *Cwlio*—a shrink.
13. *Sciw*—(slanting) corner off.
14. *Bwlch clicied*—gap (like) gatecatch.
15. *Grisiau*—steps
16. *Carai slont*—slanting gap.
17. *Bwlch grisiau*—gap in the stair.
18. *Cyllylliad*—outward cut.
19. *Bachiad*—a hook.
20. *Bwlch dau doriad* — gap (made by) 2 cuts.
21. *Cil hollt*—inward cut.
22. *Twll*—hole.
23. *Stwmp*—stump.
24. *Bwlch pwnch*—punch hole.
25. *Bwlch dyffdal*—gap (like a) dovetail.
26. *Hollti*—split.

[In connection with the above attempted translation of ear-mark descriptions, the author wishes to point out that the problem of giving a translation of the Welsh names of the different cuts is an old one and almost incapable of solution, in that a direct translation into English frequently does not make sense and conveys nothing to the reader. He has been persuaded to attempt such a translation, in the interests of English readers of this journal, though his view has always been that it was better left undone, as no doubt English equivalents exist for similar marks and names are probably totally different from the "translation."]

* Communicated to the North Wales Division, N.V.M.A., Rhyl, March 20th, 1942.

Let us compare some of the marks which on the live animal might easily be mistaken. The difference between "Canwer" No. 3 and "Picfforch" No. 8 or No. 8 and No. 9 is not always immediately obvious. Among the most tricky is No. 2—which you will see is a vertical cut—No. 18, a continuation of which would diverge from the central line, and No. 21, a continuation of which would pass through the centre.

I have brought with me some ears obtained from the local slaughterhouse and pass them round. You may possibly care to try to identify the marks with those on the sheets. If you are unable to do so I will try to show you how to do it.

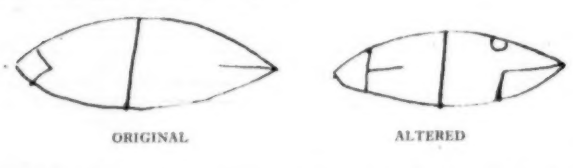
Some mention should be made of the so-called "faking" or "falsification" of ear-marks.

Attempts have been made to obliterate, mask or falsify existing ear-marks with felonious intent. The practice is not a common one—nothing like as common as might be supposed. The reason, firstly, is a moral one in that hill-folk by virtue of their isolation have not the same opportunity of learning the disagreeable habits more easily acquired by their town brethren and, secondly, because properly to fake an ear-mark is an extremely difficult thing to do.

Sheep are marked when they are lambs and then the conchal cartilage is very soft and pliable. Healing of the ear takes place readily and leaves no puckering of the cicatrice. In time wool tends to grow quite near the line of division and this growth of wool is easily detected on the adult sheep which has not been interfered with.

You cannot steal lambs and it is, therefore, on the adult sheep that attempts have been made to alter the ear-mark. The conchal cartilage of the adult sheep is harder and healing is more prolonged. The cicatrice tends to pucker and—an important point—may show discoloration when healed. The growth of wool does not approximate so closely to the edges.

I can quote a case in which an alteration of the ear-mark was made on stolen sheep and evidence given on the foregoing lines led to the conviction of the culprit. The original ear-mark was "hollti" of the right ear and "canwer" of the left. This was altered in that the "hollti" was made into a "carai step" and the "canwer" obliterated by a "tori blaen." A "bwlch plyg" was added to the top of the right ear and to the "tori blaen" of the left was added a "hollti" thus:—



ORIGINAL ALTERED

Perhaps those of you who are of a more academic turn of mind would say whether my explanation of the different results of cutting in youth and age are correct.

I conclude by saying that it is an advantage to us as veterinary surgeons to know something of the ear-marking of sheep. To the veterinary inspector, whether he be whole-time or part-time, it is essential that he should be able to distinguish between the several ear-marks. The reason for this is that in an outbreak of disease—particularly scab—it is frequently necessary to trace particular sheep. If the sheep have been ear-marked then this information can be utilised, so making the identification of the sheep certain. For instance, if John Jones of Penymynydd Ucha states that he sold 20 draft ewes at Rhyl market on October 21st last and further inquiries show that Robert Roberts of so-and-so bought them, then these 20 ewes can be identified with certainty by the Inspector. Alternatively, examination may show that the ewes submitted are not the ones in question and further enquiries have to be made and so on.

One final word of warning. If you are conducting an investigation amongst a flock of sheep belonging to a lowland farmer do not be disappointed if amongst 100 sheep you have a dozen different sets of ear-marks.

Acknowledgment.—I am indebted to Mr. Sam. Jones, Patrol Shepherd for Denbighshire, for much of the information contained in this short paper.

Reference.—Ellis, H. (*circa* 1908), "Clustnodydd." Davies and Evans, Bala.

[In common with the author, we make no apology for bringing the above subject to the attention of veterinary surgeons, though it breaks ground not normally covered by professional journals. Material of this kind is, we feel, a useful adjunct to the knowledge of the veterinarian who, as Mr. Salusbury says, "before he can know disease in an animal should know in some detail the normal methods of husbandry in that animal." We trust that his example will encourage authorship in others possessing knowledge of unusual aspects of animal husbandry or other branches of work pertaining to our calling, but to whom it has never occurred that this information might be of value to their colleagues in practice or to students. —*Editor.*]

CLINICAL COMMUNICATION

Three Cases of Diaphragmatic Hernia in the Cat, with a Note on Other Types of Hernia in the Same Species

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Diaphragmatic hernia is not adequately dealt with in textbooks of small-animal surgery. In the dog the subject has been reviewed by Brook and Holmes (1929). Their survey of the literature was not complete (see, *e.g.*, French, 1906, p. 301), but they were able to discuss some eleven published cases and to describe another, of traumatic origin, which they had examined in life, within 15 minutes of its occurrence. Other canine cases have been reported since that time.

In the cat, the condition appears to be rather rare, and we have been unable to trace any specific account of it in the standard works of reference (Kirk, 1925; etc.). Professor J. G. Wright (private communication) saw one case only among the many thousands of feline admittances to the Beaumont Animals Hospital between 1932 and 1939, and states that "diaphragmatic hernia is not as common in the cat as it is in the dog." The case which he saw was traumatic in origin, and an attempt was made to cure the condition surgically after the right side of the chest had been opened, between the ninth and tenth ribs, under positive pressure anaesthesia. The animal expired immediately after completion of the operation. Colonel A. E. Hamerton (private communication) has traced one case only of diaphragmatic hernia among members of the cat family maintained in captivity at the Zoological Society of London's Gardens in Regent's Park. The subject (see Scott, 1928, p. 96) was a Red Tiger-Cat (*Felis aurata*), in which the whole of the stomach and part of the spleen were herniated through a pleuro-peritoneal opening into the thorax. The animal was severely affected by rickets, with its sternum so deformed that the antero-posterior [ventro-dorsal] diameter of the thorax was narrowed by half, and with its ribs soft and showing much beading. Lall (1941) recorded one case, which he believed to be congenital in origin, in a five-years-old domestic cat. The evidence that this case was congenital, rather than traumatic, does not appear to be complete. We have not made an exhaustive search of the literature, but we believe that very few other feline cases can have been reported in the various clinical veterinary journals. We have therefore decided to put on record the three cases described below. We are grateful to Mr. J. Pickup (Barnet) for permission to publish details of Case I.

Case I

Subject.—Male tabby kitten, about six months of age.

History and Examination.—For some time past had exhibited a fluctuating abdominal swelling, which disappeared on lifting up the animal. The kitten was destroyed (Sept. 7th, 1936).

Post-mortem Findings.—A large tear involving both tendinous and muscular portions of the diaphragm was present and through it the small intestine, stomach, one lobe of the liver and the spleen were herniated. The colon was tightly stretched in appearance, as if drawn forward mechanically by the herniated viscera.

Case II

Subject.—An 18-months-old female cat, almost at full term pregnancy.

History.—It had been run over by an army lorry 24 hours previously (April, 1941) and the owners presented it on account of a swelling in the inguinal region.

Examination.—The cat was remarkably bright, and there was no dyspnoea. There was extensive cutaneous rupture of the abdominal muscles extending into the fascia of a hind leg and a very large ventral hernia, which contained intestine and also a horn of the uterus, with foetuses, was present in inguinal region.

Treatment.—An attempt to repair the rupture by operation, but the animal died during the induction of general anaesthesia by the intravenous injection of nembutal.

Post-mortem Examination.—In addition to the ventral hernia, there was a very large rupture of the left side of the diaphragm. Half of the liver, the stomach, and much of the small intestine were lying in the left thoracic cavity. The left lung was compressed almost out of sight, and the heart was forced over to the right side, compressing the right lung. Haemorrhage was present around the tear in the diaphragm.

[In this case, the possibility exists, although it is not a very serious one, that the diaphragmatic rupture was caused by the abdominal pressure employed in attempts to restart respiration. The haemorrhage around the tear indicated that it was *ante-mortem* in occurrence.]

Case III (with accompanying chylothorax)

Subject.—A four-years-old castrated male cat; long haired (ginger).

History.—Six months previously the cat had suddenly developed abdominal distension. It was dull but there were no other symptoms. A colleague had treated it for ascites, using a mercurial diuretic. The distension had disappeared but ever since the animal's respirations had been somewhat laboured and it had been unable to take much exercise. It was presented to one of us (J. O. J.) with a history of laboured respirations, which developed to an alarming dyspnoea if the animal moved in any way.

Examination.—The animal's general condition was fair, but some signs of emaciation were noted. Temperature 101° F. Respirations were very laboured, abdominal in nature, and becoming a noisy gasping on exertion. The mucous membranes were cyanosed. The cat preferred to lie on its brisket. Abdominal palpation was negative. On auscultation the breath sounds could be heard fairly clearly over both sides of chest, but the heart sounds were faint and irregular. The pulse rate was slow.

Diagnosis.—That the primary condition was cardiac dysfunction; possibly some congenital abnormality.

Treatment.—Cardiazol and digitalis therapy was employed, pending the owner's decision regarding the animal's destruction, which had been advised. The latter was carried out on Dec. 20th, 1941, by the intrathoracic injection of 4·5 gr. of nembutal, followed by the intracardiac injection of a saturated solution of magnesium sulphate. During the latter injection, a quantity of milky fluid forced its way into the syringe.

Post-mortem Examination.—The liver was atrophied, indurated, and yellowish in colour. The abdominal viscera were otherwise normal to the naked eye, and there was a normal amount of clear fluid in the peritoneal cavity. The thoracic cavity appeared relatively large, and contained approximately 12 fluid ounces (*i.e.*, nearly 350 ml.) of chylous fluid. After removal of the fluid the thorax appeared to be almost empty. The collapsed and congested lungs were grouped around the mediastinum. A considerable portion of the diaphragm was formed into a cylindrical tube, which extended into the thorax, and contained within its "lumen" part of one lobe of the liver and also the heart. This whole structure was removed for more careful dissection.

On subsequent dissection, it was observed that the heart was normal in appearance, and that there was no excess of fluid in the pericardial cavity. Both lungs were compressed, especially in the ventral areas, and that this compression was of some standing was indicated by the thickening and wrinkling of the visceral pleura over these areas. There was a breach of continuity both in the muscular and in the tendinous portions of the diaphragm, and through this the quadrate lobe, and also parts of the right and left central lobes of the liver, were herniated. Nothing was found, other than the diaphragmatic hernia, to account for the chylothorax.

A Note on Other Types of Hernia in the Cat

Herniation of the abdominal contents other than through the diaphragm is likewise neglected by standard textbooks dealing with the cat. Brumley (1921, p. 555) states that hernia is comparatively rare in small animals other than the dog, and neither he nor any other author whom we have consulted describes feline cases in detail; even the commonly-occurring umbilical hernia is mentioned but rarely or stated to be less common in the cat than in the dog. It is doubtful if umbilical hernia is much less common in the case of the cat: one of us (J. O. J.) has noted a considerable number of feline cases, although one only was of the so-called large ring variety, the ring in this case being about ½ inch in diameter.

In the experience of J. O. J., ventral hernia, *i.e.*, herniation (other than umbilical) of the abdominal contents through the torn muscles of the ventral body-wall, is by no means uncommon. She has met with the condition on five occasions during five years' pre- and post-graduate experience, the subjects being of varying ages. The notes of one case are given in illustration.

Subject.—A nine-years-old castrated male cat.

History.—A swelling between the hind legs, which had developed one day previously. There was no knowledge of a fall or other accident.

Examination.—The animal was grossly fat. There was complete rupture of abdominal muscles on left side. Portions of the intestines were situated subcutaneously in the region of the groin.

The animal was destroyed.

Post-mortem Findings.—The rent in the muscles was so large as to give the impression that there was no muscular tissue at all covering the left flank; there were no torn muscle edges to be seen.

In the remaining cases there were histories of street accidents. It will be noted that Case II above (R. H.) had a ventral as well as a diaphragmatic hernia. None of us has seen a case of inguinal or scrotal hernia in the cat.

* * * * *

The relative frequency of hernia in different orders and species of mammals is a matter of considerable comparative interest, but unfortunately there are few published records in this country worthy of statistical analysis. The relevant Prussian Army records (see Hutyra and Marek, 1913) show that some 304 cases of diaphragmatic hernia were recorded in equines, this figure representing 0·42 per cent. of all cases of "colic" dealt with between 1889 and 1906. Fox (1923), discussing the comparative incidence of certain conditions, states that hernia is "conspicuously absent" in orders lower than the Rodentia, in which he noted one case, and Hamerton (private communication) has met with it on a number of occasions in members of this order. He has recently (Hamerton, 1938, p. 497) described a case of strangulated diaphragmatic hernia in a Giant Rat (*Cricetomys gambianus*). Reliable data relating to small domestic animals would be valuable.

We are greatly indebted to Professor J. G. Wright (University of Liverpool School of Veterinary Science) for his valuable criticisms.

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THE KRUGER NATIONAL PARK

In connection with the recently announced death of the Hon. Piet Grobler, a South African correspondent writes to *The Times*: "One non-political achievement of great permanent value with which the name of Piet Grobler will always be associated was the constitution of the Kruger National Park, the vast reserve of 8,000 square miles in which countless wild animals—lions, elephants, giraffes, wildebeeste, zebras, buffaloes, antelopes of every kind, and other African species—roam in peace and security in their natural surroundings. The Sabie Game Reserve, which was its nucleus, was proclaimed by President Kruger in 1898, but, in spite of the devotion and perseverance of Colonel Stevenson Hamilton, who has been its Warden for more than 40 years, it remained a Cinderella until Mr. Grobler came, as Minister of Lands, to play the part of fairy godmother. Something like 200,000 acres of privately owned land inside the reserve were exchanged for 135,000 acres of Crown land outside, and other owners who did not wish to exchange were bought for £40,000. 'No one else had done more than toy with the surrounding nettles,' Colonel Stevenson Hamilton has written. 'Only when Mr. Grobler came along were they firmly grasped and the path made clear.' So one of the wonders of Southern Africa became available to the public enjoyment."

* * * * *

Sir John B. Orr, director of the Rowett Research Institute, has been appointed by the Aberdeen University Court Professor of Agriculture in the university. He will continue to be director of the Rowett Institute.

* * * * *

"If (in agricultural affairs) we allow chaos, anarchy and scramble again, and the devil take the hindmost, then the devil will assuredly take the foremost as well."—*Mr. Thomas Johnston.*

ANNOTATION

Fly Strike in Sheep and the Mules Operation

Since Mules in 1935 enunciated the principle of the removal from ewes of the medial breech folds which were subject to wetting by urine and which, as a result of moisture and of the scalding produced, became attractive to the primary blowfly, *Lucilia cuprina*, in Australia, the Mules operation has been investigated by several workers who have dealt with the results obtained when it was carried out on different ages and types of sheep. Johnstone and Graham[1], studying the incidence of crutch strike in merino sheep, found that plain-breeched animals, selected from a relatively wrinkly-breeched flock, incurred more crutch strikes than wrinkly-breeched sheep upon which the Mules operation was performed. They also found that crutching gave more effective and lasting protection against crutch strike in plain-breeched animals and in wrinkly-breeched sheep treated by the Mules operation than in untreated wrinkly-breeched sheep; this is considered as largely due to the difficulty of efficiently crutching wrinkly sheep. Despite a severe and prolonged fly wave, it was observed that the Mules operation and a mid-season crutching almost entirely prevented crutch strikes in wrinkly-breeched sheep from one shearing to another. The effect of fly strike on the general appearance and well-being of the sheep led to 17 per cent. more animals being culled from the untreated than from the treated sheep and the authors mention that this could have been avoided by proper use of the Mules operation.

Graham, Riches and Johnstone[2] have studied the effects of the Mules operation in lambs at "marking-time" and found that, in experiments, there was no evidence that the lambs were adversely affected by the operation and that with proper organisation and a reasonable speed of marking, the Mules operation can be efficiently carried out without unduly hindering the proceedings. They found that the position in which the lamb is held for marking, along with the presence of wool on the crutch, made it difficult to detect, with certainty, those plain-breeched animals which could be omitted from the operation; the use of lamb-marking cradles increased the difficulty. Accordingly, they consider that, where the Mules operation is applied at marking-time, all ewe lambs should be treated and, provided the operation is carried out as the authors describe in which there is a more extensive excision of skin than has hitherto been considered necessary, the percentage of lambs requiring treatment will be low and the protection afforded against crutch strike will be high. While the incidence of fly strike amongst lambs between marking and weaning is usually not significant, it may become serious in most areas during wet seasons, and the authors conclude that the application of the Mules operation at marking-time should provide a large measure of control in such seasons and the earlier it can be successfully applied the greater will be the benefit from it.

Graham[3] discusses the factors to be considered in selecting the time of year and age of sheep at which the operation can best be applied. Although the factors concerned depend largely on local circumstances, Graham sums up the situation by saying that beginners should perform the Mules operation on freshly crutched or shorn weaners until they are thoroughly proficient. Then the operation should be carried out in conjunction with lamb-marking unless the prevalence of bush flies (*Musca vetustissima*) or blowflies at that time warrants its postponement until the lambs are weaned. Susceptible adult sheep should also be treated and the Mules operation should be applied to any sheep affected by crutch strike, whether previously treated or not, if examination shows that the operation is required.

J. N. Oldham.

(1) Johnstone, I. L., and Graham, N. P. H. (1941.) Studies on Fly Strike in Merino Sheep. No. 6.—Comparison of the Incidence of Crutch Strike in Plain-Breeched Sheep and in Wrinkly-Breeched Sheep Treated by the Mules Operation. *J. Coun. sci. industr. Res. Aust.* 14 (4). 229-232.
(2) Graham, N. P. H., Riches, J. H., and Johnstone, I. L. (1941.) Fly Strike Investigations—Experimental Studies on the Surgical Removal of Breech Folds in Lambs. The Mules Operation at "Marking-Time." *J. Coun. sci. industr. Res. Aust.* 14 (4). 233-241.
(3) Graham, N. P. H. (1941.) The Mules Operation: Factors to Consider in Selecting Time of Year and Age of Sheep at which to Operate. *J. Coun. sci. industr. Res. Aust.* 14 (4). 241-244.

Mechanisation has not reduced the work of the Director of Veterinary and Remount Services, whose department is buying more animals than ever. There are in the mechanised Army more horses, mules and dogs than at the beginning of the war.—*The Star.*

* * * * *

Dr. S. Ryan, Eire's Minister for Agriculture, has appointed a Commission to advise him on post-war agricultural policy.

REPORT

[THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA: Fifteenth Annual Report of the Council for Scientific and Industrial Research, for the year 1940-41. Commonwealth Government Printer, Canberra.]

Notwithstanding wars and rumours of war affecting the Commonwealth of Australia, the Council for Scientific and Industrial Research has published a very valuable and comprehensive review of its activities for the year ended June 30th, 1941, thus revealing a "vision, faith and courage" which might well be emulated by those responsible for the present and future development of the agricultural and pastoral industries of this country. In these days of trial and tribulation when the people of these islands are, as pointed out by the Minister of Agriculture, confronted with the danger of starvation owing to the cessation of the supplies of animal products from overseas, the importance attached by our cousins to scientific research with a view to the increased production and improvement of food supplies, should be more fully appreciated by those in authority over us.

A very considerable part of the Council's activities was devoted to the solution of problems arising out of the war and to the assistance and advice to various Government Departments and other institutions and organisations concerned with the war effort. Nevertheless, to avoid affording information of value to the enemy, reference to these activities is either confined to brief generalised statements or is omitted entirely. The powers and functions of the Council, which are defined, included the initiation and prosecution of research in connection with, or for the promotion of, primary and secondary industries; the training of research workers; the making of grants in aid of pure research; the testing and standardisation of scientific apparatus and instruments, and the carrying out of scientific investigations connected with standardisation; also the establishment of a bureau of information relating to scientific and technical matters.

Although a considerable percentage of the Council's staff enlisted for one or other of the fighting services and others were seconded to war-time Departments, those who remained endeavoured with great success to keep former investigations going, particularly those of a long-dated nature on which time and money had already been spent. The total expenditure of the Council during the financial year 1940-41 was £363,827, of which £70,996 was contributed from sources other than the Commonwealth Treasury. Among the many donations received were those from the Commonwealth Bank, the Australian Wool Board, the Australian Cattle Research Association, the George Aitken Pastoral Research Trust, the Dried Fruit Control Board, and the New South Wales Conservation and Irrigation Commission. The fact that so many public bodies expressed in a practical manner their confidence in scientific research affords a very valuable lesson to similar organisations in Great Britain which, while participating in the fruits of research, are less ready to support it.

To give some idea of the comprehensive nature of the research carried out, it may be stated that the report is divided into 16 sections, occupying over 100 pages of most informative matter. The numerous investigations have included Drugs, Entomological Investigations, Pests, Sheep Blowfly, Buffalo-fly, Bush-fly, Cattle Tick, Plague Locust, Insect Vectors of Plant Virus Diseases and many other matters pertaining to systematic and general entomology; Animal Health and Nutrition—the section of greatest interest to veterinary readers. In all progress of practical as well as scientific interest has been made and, it is clear to see, value has been returned for the money invested not only for the present but the future. In days to come when overseas products again compete in the "home market" the value of these researches will become evident to the unfortunate "home-producer" who has been denied such assistance.

Many of the investigations described under the various headings have a bearing upon animal health and nutrition, but in this short review it is possible only to enumerate some of the more important features of the latter section. In this it is confessed that owing to war restrictions and the depletion of staff due to military service progress has been retarded; nevertheless, there is much of great interest and value to be recorded. At the Animal Health Research Laboratory, Melbourne, Pleuro-pneumonia of Cattle continued to be studied and the experiment on duration of immunity after vaccination by the use of standard culture vaccine, referred to in previous reports, was brought a stage nearer completion. Experience showed that there was no constant association between virulence and immunising capacity of the micro-organism. The demand for the vaccine continued to grow and during the year 325,000 doses were issued. Similarly, research in Entero-toxaemia of Sheep, by the investigation of the trypsin-activation effect with the toxin of *Cl. welchii* type D, suggested that, hitherto, strains for the production of vaccine had been selected upon a faulty principle and

indicated how considerable improvements could be effected. CASEOUS LYMPHADENITIS was studied and *C. ovis* treated with sodium lauryl sulphate proved to be highly antigenic for preparing agglutinating serum but of no special value against infection. BOVINE HAEMATURIA again received consideration and evidence was obtained that top-dressing with gypsum delays the onset of haematuria. Pasture analysis indicated a higher molybdenum content in "red-water" areas than in clean areas. MASTITIS IN DAIRY STOCK was the subject of further field tests which failed to show that the epidemiology of common infections of the udder differed in different environment although variations in the type of bacterium predominating in the environments were observed. A co-operative investigation of TOXAEMIC JAUNDICE was continued and a joint paper on the aetiology of the disease was published. Complement fixation tests for the diagnosis of TUBERCULOSIS OF CATTLE confirmed its value and the problem of deterioration of the antigen was overcome. This line of research appears to be of considerable interest to research workers in this country in that it may afford a solution to some of the difficulties in connection with the detection and prevention of this disease. It was determined that PEG-LEG OF CATTLE was not due to a simple phosphorus deficiency, and experiments were commenced to ascertain the effect of "licks" containing in addition to bone flour various "trace elements," now recognised as important to ruminant nutrition.

At the McMaster Animal Health Laboratory investigations were continued in relation to PARASITIC INFECTIONS. Phenothiazine was tested as an anthelmintic. Field trials in the control of the nodule worm (*Oesophagostomum columbianum*) showed that a single dose of 14 grammes gave a satisfactory result in over 80 per cent. of sheep ten months old and weighing about 50 lb. In older and adult sheep weighing about 80 lb., doses of from 15 to 20 grammes were similarly effective. Larger doses, *viz.*, from 22 to 28 grammes, are needed to deal with the black scour worms (*Trichostrongylus* spp.). The drug was also found to be very effective against *Nematodirus* spp. in doses of 0·6 gramme per kilo. of body weight, but was ineffective against the non-pathogenic *Strongyloides papillosus*. The best method of administering the drug was tested. Methods were also devised for determining the relative number of infective nematode larvae from grass blades and the soil of infected pastures. It is suggested that it may be possible to measure the infectivity of pastures by these methods. Work on the bionomics of the sheep ked was completed and the results published as a pamphlet, and trials of the efficacy of the "Mules Operation" for the control of blow-fly infestation of lambs were carried out. Studies on fly strike dressings were continued. A new mite parasite affecting the fleece of sheep was identified as a species of *Psorergates* belonging to the family *Cheyletidae*. It causes the fleece to become thin with a "pencilly tip, with loss of elasticity and tensile strength." INFECTIOUS OPHTHALMIA (Pink Eye) was investigated and RICKETTSIA, constantly present in affected conjunctivae, were suspected to play a causative role. Field observations and experiments indicated that BALANITIS of rams was related to diets rich in protein. Valuable studies in the chemical and physical conditions affecting wool and the influence of the plane of nutrition on the structure of the Merino skin and fleece were continued.

At the F. D. McMaster Field Station practical observations were made in relation to pastoral conditions; Zebu hybridisation; fertility of sheep; inheritance of skin wrinkles, black wool and horns in sheep. At the Animal Nutrition Laboratory, Adelaide, tables containing the latest information on the composition of human foodstuffs were compiled for the use of the Army Catering Department. On the veterinary side it was determined that "the widespread use of phosphatic supplements for grazing sheep is in no wise justifiable." The effects of the administration of fluorine to sheep; work on ENERGY METABOLISM and DROUGHT FEEDING and the influence of nutrition on wool production, formed but a part of the laboratory's activities. Experiments were carried out at Robe, south-east of South Australia, in connection with copper and cobalt deficiencies in sheep. It was demonstrated unequivocally that the sheep's requirements are little more than 0·1 milligrammes of cobalt per day. The amount available from pastures in some areas at times falls below this and the animals suffer untoward effects. Treatment which will allow the maintenance of vigorous health for sheep grazed on terrain where they would all die within a year from cobalt deficiency costs a small fraction of 1d. per head per year.

Many of the observations made in the sections devoted to Plant, Entomology, Soil Investigations, Food Preservation and Dairy Research are of great importance and interest to veterinarians but cannot be dealt with at length in the space available. Indeed, the length of this review is calculated to incur the disproval of the editor but it is felt that it is justified if only to emphasise the value of veterinary research to the pastoral industry and prompt the Minister of Agriculture to adopt a yet more generous policy towards it in this country.

L. E. W. B.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Sept. 12th.—Surrey W.A.E.C. Milk Production Demonstration at Guildford, 1—6 p.m.

Sept. 15th.—Meeting of N.V.M.A. Finance and General Purposes Committee, 36, Gordon Square, W.C.1, 10.45 a.m.

Sept. 16th.—Surrey W.A.E.C. Milk Production Demonstration at Redhill, 1—6 p.m.

Sept. 17th.—Derbyshire W.A.E.C. Milk Production Demonstration at Ashbourne, 2.30 p.m.

Sept. 20th.—Entries for Miss Aleen Cust Veterinary Research Scholarship (R.C.V.S.).

Sept. 23rd—25th.—N.V.M.A. Annual General Meeting and Conference, Holborn Restaurant, High Holborn, W.C.1. President's Reception, Waldorf Hotel, Aldwych, W.C.2 (Sept. 23rd); Annual Luncheon Mansion House, City of London (Sept. 25th).

Sept. 25th.—Meeting of the V.V.B.F. Ladies' Guild, Holborn Restaurant, Holborn, 10.30 a.m.

Oct. 1st.—Annual Meeting of the Central Veterinary Society, Conway Hall, Red Lion Square, W.C.1, 2.45 p.m.

Oct. 7th.—Meeting of the Scottish Metropolitan Division, N.V.M.A., at Edinburgh, 10.45 a.m.

Oct. 13th.—R.C.V.S. Council and Committee Meetings, Royal Station Hotel, York.

Oct. 14th.—R.C.V.S. Council and Committee Meetings, Royal Station Hotel, York.

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The Mansion House Luncheon

As was stated in our last week's issue, it is important that those wishing to be present at the luncheon should notify the General Secretary as soon as possible. This is especially necessary on this occasion, as it is the custom at the Mansion House to print the table plan, and satisfactory arrangements can be made only if the names of all those intending to be present are known in good time.

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Hill Sheep Farming Committee

[APPOINTED BY THE AGRICULTURAL IMPROVEMENT COUNCIL]

The letters published below are those which conveyed an invitation to the N.V.M.A. to submit evidence to this Committee. The Association is most anxious to make its representations in full accord with the views of its members. Only a short time is available for the preparation of evidence. Members are, therefore, invited to submit written comment setting out their views on the evidence which may be offered. Any individual who wishes to support his suggestions by an oral contribution should make this clear in submitting his comment and will be given full opportunity to put his views at a meeting to be held in London at an early date.

The officers of the Association wish to appeal to all interested in hill sheep farming problems to put forward their views and suggestions at the earliest possible moment. It will be noted that while the Hill Sheep Farming Committee do not wish to restrict the range of the evidence which the Association is to submit, it has, however, asked particularly for evidence on certain specific points which illustrate the long-term nature of the Committee's work and emphasise the possible effect the implementation of the recommendations of the Committee might have on the practice of Veterinary Medicine in this country. It is essential that the officers of the Association be fully informed of the views of members and that they have these views during the course of the next two weeks.

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Ministry of Agriculture and Fisheries,
Lindum Hotel,
St. Annes,
Lytham St. Annes,
Lancs.
August 21st, 1942.

T.P.Y. 11317

DEAR SIR,

HILL SHEEP FARMING COMMITTEE

You are probably aware that in January last the Agricultural Improvement Council for England and Wales appointed the above Committee under the chairmanship of Lord De La Warr to investigate and report on certain aspects of hill and upland sheep farming in England and Wales. The composition of the Committee and its terms of reference are set out in the enclosed copy of a Press notice, issued at the time of the appointment of the Committee.

The Committee has been making a series of visits and holding meetings in hill sheep farming areas, during the course of which it has received evidence from certain members of the veterinary profession in the public service. The Committee is, however, anxious to obtain evidence from a representative body on veterinary matters, and as it will shortly be resuming its deliberations in London, I am to ask if your Association will be good enough to submit evidence and suggestions to the Committee. It would be helpful if, in the first instance, a summary of the evidence could be sent to the Technical Secretary of the Committee, Mr. D. H. Dinsdale, M.A., King's College, Newcastle-upon-Tyne. At a later stage representatives of the Association will be invited to give evidence before the Committee.

Whilst the Committee has no desire to restrict the scope of your Association's representations in any way, I am to say that the Committee is particularly anxious to obtain evidence on the following matters:—

1. The adequacy of veterinary services in hill sheep farming areas and the steps which might be taken to improve them.
2. The existing facilities for research in the prevention and treatment of diseases of hill sheep and any modification or extension of these facilities which appear desirable.
3. The disseminationn of information on the prevention of sheep diseases.
4. The standardisation of veterinary biological products used in the prevention and treatment of diseases of sheep.
5. The distribution of these and other products.

Yours faithfully,
(Signed) J. H. Banbury.

F. Knight, Esq.,
General Secretary, N.V.M.A.

Enclosure referred to in letter from Mr. Banbury.

Ministry of Agriculture,
55, Whitehall,
London, S.W.1.

Press Notice. *January 20th*, 1942.
M.A.F. 651.

Hill Sheep Farming

The Agricultural Improvement Council for England and Wales has set up a Committee with the following terms of reference:—

"to investigate the present position of hill and upland sheep farming in England and Wales and in the light of modern scientific knowledge to suggest measures that might be taken to improve the condition of hill and upland grazings, the health and hardiness of sheep stocks and systems of stocking and management."

The Committee is constituted as follows:—

Lord De La Warr, Chairman; Mr. J. C. F. Fryer, O.B.E., M.A.; Mr. Moses Griffith, M.Sc.; Mr. David Lewis; Dr. R. F. Montgomerie, B.Sc., F.R.C.V.S.; Professor G. W. Robinson, M.A., Sc.D.; Mr. R. W. Wheldon, D.Sc.; Mr. W. Wilson.

Mr. D. H. Dinsdale, M.A., of King's College, Newcastle-on-Tyne, will act as Technical Secretary to the Committee and the Administrative Secretary will be Mr. J. H. Banbury, of the Ministry of Agriculture and Fisheries, Lindum Hotel, St. Annes-on-Sea, Lancs.

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V.V.B.F. LADIES' GUILD

The enhanced value of the financial and "moral" support given by the Ladies' Guild to the charities of the profession during wartime, when their need of such aid is greatest, needs no emphasis. The additional importance thus attaching to the maintenance of interest in the functioning of the Guild may, however, be stressed in connection with the notification (given in our notices column) of the forthcoming annual general meeting. It is hoped that by their attendance at the Holborn Restaurant on September 25th (the second day of the N.V.M.A. Annual Conference), the members of the Guild will give encouragement to their officers and ensure a good start upon another year of useful work.

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PERSONAL

Mr. A. D. J. Brennan, M.R.C.V.S. (Superintending Veterinary Inspector, lately in charge of South Wales area), has joined the head office of the Ministry of Agriculture and Fisheries. He is succeeded by Captain V. Boyle, M.R.C.V.S.

During his tenure of office in South Wales, Mr. Brennan has rendered outstanding service to the South Wales Division, N.V.M.A., notably for several consecutive years as President. In the supplement to this issue of the *Record* report is made of the presentation made to Mr. Brennan at Carmarthen by the members of the Division and of the many tributes paid to his work both for the Division and for the veterinary community in the area.

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Birth.—Dougal.—On August 29th, 1942, to Claire, wife of Laurence Dougal, M.R.C.V.S., Pinewood, New Rattray, Blairgowrie (now serving in the Royal Marines), a daughter.

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Marriages.—Beattie—Douglas.—On September 2nd, at St. Annes-on-Sea, by the Rev. Thomas Houghton, B.A., B.D., George Shand Beattie, M.R.C.V.S., D.V.S.M., only son of Mr. and Mrs. G. Beattie, Craigoyne, Bieldside, Aberdeenshire, to Jessie Farquharson (Shona), only daughter of Mr. A. Douglas, M.R.C.V.S., D.V.S.M., and Mrs. Douglas, 7, Newbury Road, St. Annes-on-Sea, Lancs.

Mr. Eoghan Clark, M.R.C.V.S., D.V.S.M., also of the Animal Health Division, was best man.

The bridegroom is at present stationed at Durham.

Dyer—Fisher.—On September 2nd, 1942, at St. Nicholas Church, Harpenden, Gwilym Dyer, of Lower Boddington, Rugby, son of Mr. and Mrs. Thomas Dyer, of Llangadock, to Joan Fisher, M.R.C.V.S., daughter of Mr. and Mrs. A. Rigby Fisher, of Harpenden.

Gooch—Regnauld.—At Christ Church, Surbiton, on August 25th, Richard Henry Gooch, M.R.C.V.S., only son of Mr. H. Gooch, M.R.C.V.S., and Mrs. Gooch, of Surbiton, to Lesley Alice Regnauld, M.R.C.V.S., only daughter of the late Mr. L. J. Regnauld and Mrs. Regnauld, of Rochester, Kent.

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The Densham Scholarship.—Mr. Frank Horace Manley, M.V.Sc., M.R.C.V.S., a graduate of Liverpool University, has been awarded the Densham Scholarship tenable at Epsom College, a scholarship which is awarded to the sons of men of British nationality, who have rendered meritorious service to the British Empire within, or more especially outside, the United Kingdom. Mr. Manley, who was selected by the Colonial Office for work abroad, has spent many years on research work in Uganda, Nigeria and Cyprus.

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R.C.V.S. OBITUARY

Coleman, John Charles, The Limes, Swindon, Wilts. Graduated London, July 7th, 1885. Died September 3rd, 1942; aged 79 years.

Mr. J. C. Coleman, M.R.C.V.S., of Swindon

Our readers will learn with deep regret of the death of Mr. John Charles Coleman, which took place on Thursday of last week after a prolonged period of ill-health, at the Swindon Victoria Hospital. Mr. Coleman was numbered amongst those members who make time, amidst the demands of a busy practice, to participate in the corporate activities of the profession. He served on the Council of the Royal College of Veterinary Surgeons for many years, being elected continuously from 1914—1938. Mr. Coleman was also for a long period a member of Council, N.V.M.A., representing the Mid-West and South Wales Division, in the days before those areas became divisional entities, with great faithfulness, for none was more regular in his attendance. We extend our deepest sympathy to the widow and others bereaved—Mr. Coleman has a son in the profession, Mr. Ivan R. R. Coleman, practising with Mr. G. P. Male at Reading. The funeral service took place at Swindon Parish Church on Monday last, cremation following at Oxford.

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DISEASE IN DAIRY HERDS: ERROR OF A FATALISTIC ATTITUDE

Control Scheme Commended to Scottish Farmers

Addressing a milk production demonstration at Kilmarnock, Mr. T. G. Wilson, Chairman of the Scottish Milk Marketing Board, referred to the great loss in milk production and profits caused by disease in dairy herds. Mr. Wilson urged farmers not to adopt a fatalistic attitude in regard to disease, accepting it as inevitable, but to make up their minds to fight it and control it and cure it. He commended to all dairy farmers the scheme promoted by the National Veterinary Medical Association for the regular visitation of herds by veterinary surgeons. He was convinced that by recording all herds, by treating their feeding-stuffs as though they were the most precious things that ever came into their hands, and by employing expert help to control disease they could do much to increase the production of milk.

Milk-recording was essential if the utmost advantage was to be obtained from the feeding-stuffs supplied, yet only 10 per cent. of our dairy herd were milk-recorded. Farmers had no right in the present circumstances to use the feeding-stuffs in a careless or haphazard manner, and he appealed to farmers to record their herds at once and then to feed the individual cows what their yields entitled them to.

FOOT-AND MOUTH DISEASE

Since our announcement, last week, of the position, foot-and-mouth disease has been confirmed among cattle at Bow Brickhill, Bucks, and Much Dewchurch, Hereford.

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SCHEME FOR THE CONTROL OF DISEASES OF DAIRY CATTLE

STATEMENT SHOWING THE NUMBER OF UNDERTAKINGS NOTIFIED TO THE MINISTRY OF AGRICULTURE DURING THE WEEK ENDED SEPTEMBER 5TH, 1942.

County	Undertakings Notified		Total Undertakings		
	During Week	Previously	No.	No. of Cattle	
				Cows	Heifers
ENGLAND					
Bedford	—	21	21	564	402
Berks	3	30	33	1,062	716
Bucks	1	24	25	684	517
Cambridge	1	7	8	180	89
Chester	8	180	188	6,852	2,394
Cornwall	—	—	—	—	—
Cumberland ..	2	18	20	623	574
Derby	23	61	84	2,563	1,549
Devon	1	68	69	1,185	787
Dorset	3	18	21	706	348
Durham	4	112	116	2,742	757
Essex	8	94	102	4,462	2,573
Gloucester	—	39	39	1,432	815
Hampshire	3	137	140	4,610	2,927
Hereford	—	11	11	224	99
Hertford	3	33	36	1,203	796
Hunts	—	3	3	49	45
Isle of Ely	—	—	—	—	—
Isle of Wight ..	—	4	4	55	15
Kent	3	55	58	1,218	751
Lancs	1	86	87	2,659	796
Leics	1	28	29	826	535
Lincs (Holland) ..	—	4	4	45	11
„ (Kesteven) ..	1	6	7	76	58
„ (Lindsey) ..	3	21	24	456	183
Middlesex	1	1	2	83	4
Norfolk	4	97	101	3,041	2,018
Northants	3	29	32	933	776
Northumberland ..	—	36	36	1,115	596
Notts	—	32	32	959	452
Oxford	—	15	15	410	502
Rutland	—	6	6	110	68
Salop	2	122	124	4,148	1,969
Soke of Peterborough	—	—	—	—	—
Somerset	5	56	61	1,716	666
Staffs	7	86	93	2,810	1,372
Suffolk, E.	1	35	36	940	662
„ W. ..	—	21	21	366	246
Surrey	1	53	54	1,529	672
Sussex, E.	3	75	78	2,018	986
„ W.	4	52	56	1,692	1,087
Warwick	2	64	66	1,671	1,077
Westmorland ..	2	6	8	165	234
Wilts	—	33	33	1,455	654
Worcester	3	85	88	2,007	923
Yorkshire, E.R. ..	1	19	20	376	186
„ N.R. ..	2	55	57	1,218	669
„ W.R. ..	4	106	110	3,039	1,072
WALES					
Anglesey	—	8	8	161	50
Brecon	—	2	2	25	9
Caernarvon ..	7	60	67	1,306	577
Cardigan	—	11	11	166	117
Carmarthen ..	4	124	128	2,429	1,258
Denbigh	2	29	31	670	312
Flint	2	54	56	1,235	580
Glamorgan	2	37	39	571	232
Merioneth	—	5	5	64	58
Monmouth	—	15	15	432	230
Montgomery ..	—	4	4	132	118
Pembroke	5	51	56	1,119	708
Radnor	—	—	—	—	—
TOTALS ..	136	2,544	2,680	74,596	38,787

Note.—Of the total of 2,680 undertakings notified to date 721 are for 1 year 160 are for 2 years, and 1,799 are for 3 years.

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SCIENCE AND THE CENTRAL DIRECTION OF THE WAR

GOVERNMENT'S LIMITED MOVE

From time to time we have reported the steps which have been taken by organised scientific opinion—strongly supported by public opinion—to impress upon the Government the paramount necessity of mobilising scientific knowledge and advice and applying it to the central direction of the war. It has now been announced that "in order to ensure that the fullest use is made of our scientific and technical resources in the field of production, the Minister of Production has appointed Mr. W. A. Stanier (Chief Mechanical Engineer to the London Midland and Scottish Railway), Dr. T. R. Merton (Treasurer of the Royal Society), and Dr. I. M. Heilbron (Professor of Organic Chemistry, Imperial College of Science and Technology) to his staff in the capacity of full-time Scientific Advisers.

An official statement says: "The field of activity of these advisers will be co-extensive with the responsibility of the Minister of Production. They will keep in close touch with the scientific advisers of the Service and Supply Departments, and will be available to assist the departmental organisations of scientific research and technical development. They will not supersede the departmental organisations, which will, for instance, continue to be responsible for the examination of new inventions and technical suggestions in their own fields.

They will be responsible to the Minister of Production, but will work under the immediate supervision of the Lord Privy Seal, acting on his behalf.

These appointments have been made with a view to completing the existing organisation for scientific research and development which has been carefully built up over a number of years and operated with outstanding efficiency.

The Government have reviewed the whole position in the light of recent representations and have decided that the creation of the post of Minister of Production affords the opportunity for this further measure of co-ordination which the Government believe will be to the national advantage."

The Times of Monday last carried the following editorial comment: "What had been widely urged upon the Government was the association of an authoritative group of scientists not so much with the Ministry of Production—it must be presumed that Mr. Lyttelton has from the first enjoyed the assistance of scientific advisers—as with those responsible for the central direction of the war. It is, therefore, somewhat baffling to find that, although the three scientists now appointed will work 'under the immediate supervision of the Lord Privy Seal,' Sir Stafford Cripps will be acting in this capacity not on behalf of the Prime Minister or of the War Cabinet as a whole, but on behalf of the Minister of Production. This arrangement would, if pressed to its logical conclusion, appear to place a serious limitation on the scope of the functions which they are called on to fulfil. What can be achieved in practice will, however, depend on individuals rather than on definitions of function. The appointments would be meaningless if the new advisers were not intended to survey the whole conduct of the war from the standpoint of science and free from direct departmental responsibility, tender their general advice on scientific problems and scientific opportunities in whatever field that may arise. This is the spirit in which they themselves may be expected to approach their work. Their success will be measured by the extent to which the same spirit actuates others to avail themselves of the services which science can render."

CRITICISM BY M.P.S OF ADVISERS' SCOPE

At a recent meeting of the Parliamentary and Scientific Committee at the House of Commons, the recent appointment of three full-time scientific advisers to the Ministry of Production was considered and the following resolution was passed:—

"This Committee, while welcoming the appointment of three full-time scientific advisers to the staff of the Ministry of Production in so far as it establishes the nucleus of a central scientific and technical board, regrets that their field of activity is apparently to be limited to the sphere of production and does not include the scientific and technical activities of the service Departments or the other Ministries outside the strict field of production. An extension of its functions is needed to ensure that all scientific considerations are co-ordinated and given full weight over the whole field of the national effort. The Committee considers, therefore, that in order to cover this wider field, scientific advisers should have direct access to the War Cabinet and that accordingly the Lord Privy Seal should exercise his supervisory functions over the new body directly on behalf of the War Cabinet."

It was reported that 126 members have now added their names to the motion on the Order Paper, which suggests that "present circumstances require the early establishment of a whole-time Central Scientific and Technical Board to co-ordinate research and developments in relation to the war effort."

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Our readers will be interested to know that the articles on "War Gases and Foodstuffs" by Dr. W. R. Wooldridge, published in the issues of *The Veterinary Record* of November 15th and 22nd, 1941, have been embodied into a small book on "Food and Gas" to be published almost immediately by Messrs. Leonard Hill, Ltd., 17, Stratford Place, W.1, at 2s. 6d., postage 2d.

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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PYOMETRA OR PREGNANCY: DIFFERENTIAL DIAGNOSIS

Sir,—My friend, George Gould, has, I think, dealt effectively and very leniently with the criticisms which Rowson and Spriggs levelled at the article by Gould, Hignett and myself. I have only a few observations to make concerning their criticisms. With my co-authors I do most strongly object to having a few words or lines lifted from their context and used so as to convey an impression of dogmatism where none was intended or implied. In our short bracketed note on pyometra we mention a number of differential aids to diagnosis which should be considered together. Rowson and Spriggs very boldly assert that in coming to a decision as to whether pregnancy or pyometra exists "the only distinguishing feature by rectal examination is to pick up a fold of the uterus and allow it to slip through the finger and thumb, when the foetal membrane will be felt slipping away before the uterine wall is released." The importance of this statement is its association with the time factor, for the authors are discussing an enlargement comparable to a 3—3½ months' pregnancy. At this time, *generally speaking* (please note the qualification), the gravid uterus has reached its maximum tenseness and it would be quite impossible for the vast majority of practitioners, myself included, to pick up a fold of the uterus at all. In the diagnosis of pregnancy there are a number of factors to be considered, some more reliable than others and some being of greater value to one person than to another, but whilst admitting room for a wide difference of opinion, I say without hesitation that what Rowson and Spriggs describe as "the only distinguishing feature" is the most unreliable of all. If practitioners accept it as being 'diagnostic' and inject stilboestrol into, or express the corpus luteum from, such animals, then there will be a lot of foetuses lying about the fields and cowsheds.

With Gould, I found particular interest in Rowson and Spriggs' description of a 'pyometra' in which, amongst other findings, "the right horn of the uterus was found to be enlarged to the four months stage of pregnancy and fremitus was present in the right uterine artery." In fact, my interest is such that when these gentlemen find a similar case I hope they will give me the opportunity of examining it; I would travel a goodly distance to do so, for, whilst I have on rare occasions met pregnancies which failed to exhibit 'fremitus' when they should have done, I have never yet encountered a fremitus in a non-gravid animal.

Messrs. Rowson and Spriggs are members of a team doing *excellent* work. I would, however, draw their attention to the advice given by Sir Alfred Webb-Johnson, President of the Royal College of Surgeons of England, in an address to new graduates—"Don't hurry out into full independent autonomous isolated work; knowledge and timber should not be much used until they are seasoned."

Yours faithfully,

28, Lichfield Street, H. W. Steele-Bodger.
Tamworth,
Staffordshire.
September 1st, 1942.

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UTERINE IRRIGATION

Sir,—I have been diligently searching the columns of the *Record* since the recent publication of Mr. Smythe's article, erroneously entitled "Notes on uterine irrigation in the cow," fully expecting that such an article would bring a major storm about the author's head.

Instead of the expected storm, however, the glass has remained at "set fair," and so I risk producing the first faint flicker of lightning. I am not, and never have been, a supporter of indiscriminate uterine irrigation, but the value of this procedure in certain selected cases can hardly be doubted by even the most determined of the "anti-surveyites," and it would be a pity to allow it to fall into disrepute, as the result of such an apparently worthless and misleading experiment as that carried out by Mr. Smythe. What is the possible relationship between injecting fluid into a cavity whose walls are composed of dead tissue and irrigating the uterus of the living animal? One might as well report that one has squeezed out the corpora from the ovaries of a dozen dead cows without causing haemorrhage!!

Mr. Smythe is probably deluding himself accidentally if he suggests that he can compute the amount of fluid which may be safely injected into the living uterus by experiments on dead specimens; and no one could possibly attach any importance to the results obtained. I wonder why Mr. Smythe did not do his uterine irrigations immediately *ante-mortem* and then examine his uteri after slaughter? His observations on such a procedure might have had some value.

At one time I used to inject from 20 to 25 oz. into uteri that were of apparently normal size—the surplus invariably ran back through the cervix into the vagina and the experience of hundreds of clinicians has shown that the danger of uterine rupture is about as great as that of ovarian haemorrhage following expression of the corpus—that is, just about nil.

I must close by endorsing the sentiments recently expressed by Mr. R. R. Bugg in these columns, that deliberate and repeated attempts to undermine our confidence in the Survey Scheme and its various recommendations savour strongly of disloyalty, and I deplore the fact that a gentleman of Mr. Smythe's undoubted ability and standing should so consistently endeavour to disparage and even ridicule a scheme at the difficult time of its inception, when that scheme is receiving such a measure of support from the vast majority of the members of the profession and of the livestock industry.

Yours faithfully,

49, Cambridge Street, L. Guy Anderson.
Aylesbury,
Bucks.
September 3rd, 1942.

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SCHEME FOR THE CONTROL OF THE DISEASES OF DAIRY CATTLE

Sir,—I was greatly surprised at the attitude adopted by Mr. T. S. Anderson in his letter, but perhaps it was written without due consideration—a view which is borne out by the truly amazing combination achieved in the letter. In a few short lines Mr. Anderson endorses Democracy, advocates Dictatorship, approves Trade Unionism and gives a short dissertation on professional loyalty, or rather, loyalty to the profession—a distinction with a difference.

I cannot doubt that Mr. Anderson is well imbued with a spirit of loyalty to the profession, but surely that does not blind him to the equally important point that every member should also be loyal to his clients.

With regard to Mr. Anderson's remark that I should have aired my views about removal of the placenta at the meetings held before the scheme was inaugurated, the explanation of why I did not do so is very simple. It never occurred to me that, when it was proposed to undertake the treatment of abortion and sterility, such an inseparable condition as retention of the placenta could possibly be omitted. Moreover, to the best of my knowledge, no indication was ever given that it was to be omitted until the Editorial footnote to Mr. Motton's letter which was some time afer the commencement of the scheme. Had the instruction been made clear in the first place, naturally I should have accepted it, although perhaps unwillingly, but when the ruling only made its appearance at such a belated date I could not see my way to revise an undertaking previously given in all good faith.

Neither Mr. Anderson nor anybody else has disputed the truth of my argument that retained foetal membranes are inseparably bound up with abortion and sterility and as such should be included in the scheme, and I am, therefore, unwilling to accept Mr. Anderson's statement that the majority has agreed that removal should not be undertaken. However, since logical argument brings only the accusation of disloyalty and undercutting perhaps a plainer statement may indicate my attitude. The scheme, I believe, is intended to be the profession's collective contribution to the war effort, and as such it should be a wholehearted effort and not stinted on the grounds of inadequate remuneration. Can one imagine the crew of a bomber, out over Germany, suddenly deciding that they were not sufficiently well paid to justify travelling all the way to the target which they had undertaken to attack?

The scheme itself is good and the amazing amount of work done by those who prepared it, their undoubted enthusiasm and the amount of personal inconvenience they willingly endured cannot be too highly praised, so why spoil all that effort by a selfish attitude in the working of the scheme?

I trust that Mr. Anderson now feels reassured that what he was pleased to call undercutting is not, in this case, done with any ulterior motive, nor, I hope, is it disloyal, but that in my opinion a matter of principle is involved because an agreement was made and that agreement should be carried out in full.

Yours faithfuly,

2, Wellington Villas, G. N. Shirley.
Crewe,
Cheshire.
September 3rd, 1942.